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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,783	07/28/2003	Gonzalo Wills	10-579 US	5338
24949	7590	12/27/2005	EXAMINER	
TEITELBAUM & MACLEAN 1187 BANK STREET, SUITE 201 OTTAWA, ON K1S 3X7 CANADA			LAVARIAS, ARNEL C	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,783

Applicant(s)

WILLS ET AL.

Examiner

Arnel C. Lavarias

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/21/05, 7/28/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5 and 7-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/28/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/28/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. The Applicants' election without traverse of Species 3 (Claims 2-3, 5, 7-8, 10, 14-16, 18) in the reply filed on 10/21/05 is acknowledged.
2. The Applicants additionally argue that Claims 9 and 17 should also be grouped with Species 3 since the devices shown in Figures 10-12 also include a reflective element, wherein the first lens and the second lens are made up of different parts of the same lens. After reviewing Figures 10-12, Applicants' specification regarding the interpretation of the terms 'between' and 'plurality of lenses' as disclosed in the various species shown in Figures 2-8, 9, 10-12, and Applicants' remarks in the response filed 10/21/05, the Examiner agrees. Therefore, the invention designated as Species 3 in the restriction requirement dated 9/27/05 is now directed to that shown in Figures 10-12, which is encompassed by Claims 2-3, 5, 7-10, 14-18.
3. Claims 4 and 6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/21/05.

Priority

4. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 119(e).

Drawings

5. The drawings were received on 7/28/03. These drawings are objected to for the following reason(s) as set forth below.
6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:
Figure 1- Reference numerals 34, 35, 40, 45.
7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:
Figure 8- Reference numerals 200, 203d, 204a (See Paragraph 33).
8. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

9. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of *50 to 150 words*. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. *It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.*

10. The abstract of the disclosure is objected to because of the following informalities:

Abstract is too long

Abstract, line 1- 'The invention relates to a' should read 'A'.

Correction is required. See MPEP § 608.01(b).

11. The disclosure is objected to because of the following informalities:

Paragraph 03, line 3- 'to' should read 'two'

Paragraph 07, line 1- 'A' should read 'a'

Paragraph 28, line 27- insert 'to' after 'for output'

Paragraph 29, line 14- 'not' should read 'no'.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-3, 5, 7, 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Pan (U.S. Patent No. 6181846).

Pan discloses a variable optical attenuator device (See for example Figures 2A, 3B-C, 7) comprising an input port (See for example 10 in Figures 2A, 3B-C) for launching an input beam of light; a polarization beam splitter (See for example 15 in Figures 2A, 3B-C; Figures 2B-C) for dividing the input beam into first and second orthogonally polarized sub-beams; a first lens (See 16 in Figures 2A, 3B-C) for collimating the first and second sub-beams, and for redirecting the first and second sub-beams along crisscrossing paths; a variable polarization rotator (See 18 in Figures 2A, 3B-C) disposed in the crisscrossing paths for rotating the polarization of the first and second sub-beams by a desired amount, whereby each of the first and second sub-beams has first and second orthogonally polarized components; a second lens (See 16 in Figures 2A, 3B-C) for focusing the first and second sub-beams, and for redirecting the first and second sub-beams along substantially parallel paths; a polarization beam combiner (See 15 in Figures 2A, 3B-C) disposed in the parallel paths for combining the first component of the first sub-beam with the second component of the second sub-beam into an output beam; and an output port (See 11 in Figures 2A, 3B-C) for outputting the output beam. Pan additionally discloses the crisscrossing paths intersecting proximate the variable polarization rotator, whereby both the first and second sub-beams enter the variable polarization rotator at substantially the same point (See Figures 3A-B); the variable polarization rotator is disposed proximate a focal plane of the first lens, whereby the crisscrossing paths intersect proximate the variable polarization rotator (See Figures 3B-C); the device

further comprising a reflective element between the first lens and the variable polarization rotator or between the polarization rotator and the second lens for redirecting the first and second sub-beams (See 19 in Figures 2A, 3B-C); the first and second lenses comprise a single lens, which redirects the first and second sub-beams twice; and wherein the first and second birefringent elements comprise a single birefringent crystal, which separates and combines the input beam and output beam, respectively (See 15, 16 in Figures 2A, 3B-C); the polarization beam splitter is sized to receive a plurality of input beams, and divide each of the plurality of input beams into a plurality of first and second sub-beams (See 65 in Figure 7); the polarization beam combiner is sized to receive the plurality of first and second sub-beams for combining respective first components of the first sub-beams with the second components of the second sub-beams (See 65 in Figure 7); the polarization beam splitter is a first birefringent crystal, and wherein the polarization beam combiner is a second birefringent crystal (See 15 in Figures 2A, 3B-C; col. 4, line 51-col. 5, line 6); the variable polarization rotator is a liquid crystal cell (See 18 in Figures 2A, 3B-C; col. 2, line 47-col. 3, line 6); the first and second birefringent crystals induce an optical path length difference between the first and second sub-beams, thereby inducing a predetermined polarization mode dispersion (It is noted that though Pan does not explicitly disclose this feature, it is necessarily inherent to the operation of the birefringent elements. In particular, the birefringent crystals will act either to split unpolarized light into two beams having orthogonal polarization components, or recombine two beams having orthogonal polarization components into a single beam. In performing these functions, the beams having orthogonal polarization traversing the

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birefringent crystals will travel different paths, where one path will be longer than the other path. This directly leads to an optical path difference between these two beams, which in turn leads to polarization mode dispersion when such beams are recombined, unless the optical path difference is compensated for prior to recombination.); and the input port being a plurality of input ports, and the output port being a plurality of output ports (See for example Figures 8A-B).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 8-10, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan.

Pan discloses the invention as set forth above in Claim 1, except for the first and second lenses being a single array of lenses and the variable polarization rotator being an array of variable polarization rotators, i.e. the duplication of multiple variable optical attenuator devices operating in parallel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first and second lenses be a single array of lenses and the variable polarization rotator be an array of variable polarization rotators, i.e. the duplication of multiple variable optical attenuator devices operating in parallel, since it has been held that a mere duplication of working

parts of a device involves only routine skill in the art. One would have been motivated to have the first and second lenses be a single array of lenses and the variable polarization rotator be an array of variable polarization rotators, i.e. the duplication of multiple variable optical attenuator devices operating in parallel, to allow the device to process multiple input signals, such as from a WDM-type communications signal, in parallel or at the same time, thus reducing processing time and cost. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication US2002/0097957A1 to Kikuchi et al.

Kikuchi et al. is being cited to evidence conventional arrayed optical devices, such as optical circulators, isolators, and attenuators, which include arrayed lenses and optical chips (i.e. arrayed circulators, isolators, attenuators), for processing multiple incident signals in parallel and/or simultaneously (See for example Figures 1, 3-10).

U.S. Patent No. 6055104 to Cheng.

Cheng is being cited to evidence a conventional optical attenuator (See for example Figures 5-6) similar to the claimed invention. Cheng similarly discloses an input port (See for example 16a in Figures 5-6); a polarization beam splitter (See for example 130/140 in Figures 5-6); a first lens (See 105 in Figures 5-6); a variable polarization rotator (See 132 in Figures 5-6); a second lens (See 105 in Figures 5-6); a polarization

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beam combiner (See 130/140 in Figures 5-6); and an output port (See 16b in Figures 5-6); and a reflector (See 136/146 in Figures 5-6).

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
Patent Examiner
Group Art Unit 2872
12/22/05